FLOOD EMERGENCY CLEAN-UP/REENTRY GUIDELINES

The SAFETY of establishment and home owners is priority when flood waters recede to the point of entry for clean-up purposes. Natural gas and electricity are crucial to be inspected by professionals to avoid loss of life. The **attached guidelines** have been obtained from the State of Illinois and are offered for post flooding/disaster clean up and reentry guidelines.

Please note:

In addition to the information enclosed, it is important that silt and mud that accumulates within establishments be removed as soon as possible, perhaps even before the utilities are restored **(BUT NOT BEFORE UTILITIES ARE TURNED OFF!).** If not removed before drying commences, silt and mud are very difficult to remove. Water may be sprayed or hosed by means of portable pumps and hoses to loosen mud and silt to facilitate clean-up efforts.

The information in this attachment may serve as additional reference materials for flood area victims to use for safe efficient clean-up procedures.

For further information, please contact one of the following division office numbers:

Environmental Management Branch (502) 564-4856
Food Safety Branch (502) 564-7181

EMERGENCY DISINFECTION OF SMALL VOLUMES OF WATER

BOILING

The most reliable and simplest method of purifying small quantities of water, where fuel is available, is to heat to *a rolling boil* for three (3) minutes.

CHEMICAL SANITIZATION (Chlorine)

Product	Available Chlorine %	Stock Solution	Quantity of Stock Solution To Treat 1 gal. of Water	Quantity of Stock Solution to Treat 1,000 gal. of Water
Regular unscented Household bleach Note: Do not use perfumed or scented bleach	5.25	Use full strength	6 drops	1 pint
*HTH, Perchloron, Pittchlor	70	2 heaping tablespoons full (1 oz.) to 1 qt. of water	1 teaspoon full	1 quart

Let stand for 30 minutes before using. To dechlorinate, use sodium thiosulfate in the same proportion as chlorine. Chlorine dosage is approximately 5 - 6 mg/l. (1 liquid oz. = 615 drops.); (2 tsp. = 10 ml.); (1 tbsp. = 15 ml.); and (30 ml. = 1 fl. oz.). Make sure chlorine solution or powder is fresh; check by making DPD test

* When using chlorine tablets to disinfect water for drinking purposes, do not use tablets with stabilizer added.

SURVEILLANCE OF DISTRESSED DRUGS & ALCOHOLIC BEVERAGES

Blanket quarantine shall be effected by posting "Quarantine Notices" on the entrance of any facility in which drugs, medical devices* and **alcoholic beverages have** become adulterated or misbranded due to flood water exposure. In addition, other factors that would indicate probable adulteration of drugs and devices include but may not be limited to: exposure to high humidity; extreme temperature changes (<59° F. or >86° F.): and exposure to smoke. When a blanket quarantine has been done, the owner of the products shall be notified immediately or as soon as possible and follow-up shall be made to determine if segregation of saleable vs. non-saleable merchandise is necessary and the quarantine documentation shall include, at the least, best estimates based upon the owner's input of total volume or weight and dollar value.

It is important to move as quickly as possible to work quarantine situations in order to assure that consumers do not have access to adulterated items and to facilitate the removal of the damaged merchandise to a suitable solid waste disposal site for guarded disposal (this is necessary to prevent pilfering and scavenging).

After *drugs* or *medical devices* have been quarantined, the Drug Control and Professional Practices Branch shall be notified at (502) 564-7985. Then a decision will be made regarding further disposition. This will insure compliance with KRS 217.155, which requires that the inspector for a retail pharmacy be a registered pharmacist.

If a **state of emergency** has been declared, a Registered Sanitarian who finds any drug or medical device that has been exposed to any filthy, decomposed or putrid substance or that may be deleterious to health shall condemn and destroy it, or in some manner render it unfit for human use. However, if the drugs or medical devices are located in a retail pharmacy, Drug Control must authorize any destruction.

Over-the-counter drugs may be quarantined and voluntarily destroyed in the same manner as foods by a Registered Sanitarian.

In addition, the appropriate Alcohol Beverage Control (ABC) Authority shall be notified for direction about disposition of adulterated ALCOHOLIC BEVERAGE products. That contact may be made by contacting Anita Travis Food Branch at (502) 465-7181; or Alcohol Beverage Control at (502) 564-4850 for further instructions.

*As defined in KRS 217.015(6), the term "device" means instruments, apparatus, and contrivances, including their components, parts, or accessories, intended: (a) For use in the diagnosis, cure, mitigation, treatment, or prevention of disease in man or other animals; or (b) To affect the structure or any function of the body of man or other animals.

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WATER DAMAGED BABY FOOD AND FORMULA

Be advised that all baby food, infant formula or other consumable baby foods, liquid or solid, if exposed to or submerged in flood waters, shall be considered not consumable or saleable and shall be quarantined and destroyed. SUCH BABY FORMULA AND FOOD PRODUCTS SHALL NOT BE SALVAGED.

RECLAMATION AND CLEAN-UP OF FOOD EQUIPMENT SUBJECTED TO FLOODING

Questions have arisen about the acceptance of food equipment, particularly refrigeration equipment that has been subjected to flood waters. The following may be used as guidelines for evaluating the condition of flooded equipment for future intended use.

The electrical components, motors condensers and other mechanical components should be thoroughly *checked for safety and efficient operability by a qualified electrician or service technician,*

The interior, and all direct or indirect food contact surfaces or parts shall be effectively cleaned rinsed and sanitized. Particular attention shall be given to assure that all exposed condensers, refrigeration coils, fans, shields, shelving and other appurtenances attached to the interior of refrigeration equipment, are thoroughly cleaned and sanitized. This is necessary to preclude the possibility of any air-borne contaminants.

The exterior and all non-food contact parts of food equipment must be thoroughly cleaned, and sanitized where practical. Where insulation is contained within walls, check to determine if wet. In the case of refrigeration equipment, if it is determined that the insulation is foam and is not wet, follow the above referenced cleaning procedures. Seepage may indicate damaged or soggy insulation, which would indicate needed repairs to restore effective insulating qualities prior to future use. Any open seams or crevices created by flood damage should be sealed with a smooth bead of silicone caulking.

Equipment which has been subjected to flood waters in a jurisdiction after a state of emergency has been declared, which can not be thoroughly evaluated, cleaned and sanitized for reuse as indicated above, should be considered subject to condemnation under the provisions of KRS 217.115. Any food contact surface which, when used, may be likely to impart adulterants to food may be considered a "food additive" and, therefore may be subjected to the condemnation under the authority of this satute.

If there are questions pertaining to the above, or if this office can be of further assistance, please contact Mr. John Draper, Manager, Food Safety and Cosmetics Branch at (502) 564-7181.

SPECIAL ANNOUNCEMENT FROM YOUR HEALTH DEPARTMENT

IMMEDIATE EMERGENCY DISINFECTION OF DRINKING WATER

Heat

1. Strain water through a clean cloth into a clean container to remove any sediment or floating matter.
2. Boil the water (rolling boil) for at least three (3) minutes.
3. Allow water to cool. Keep water in clean covered container.

Chemical

If boiling is not possible, strain the water as in Step 1 above and purify with one of the following chemicals as specified:

Unscented Household Laundry Bleach
(Read label to find percentage of chlorine available)

Available Chlorine	Drops to be added per quart	
	Clean water	Cloudy water
5.25%	2	4
	Drops to be added per gallon	
	6	12
	Disinfection of 1,000 gallons	
	1 pint	2 pints

- **DO NOT USE PERFUMED OR SCENTED BLEACH -**

1. Mix thoroughly by stirring or shaking water in container.
2. Let stand for 30 minutes
3. A slight chlorine odor should be detectable in the Water; if not, repeat the dosage and let stand for an additional 15 minutes before using.

C A U T I 0 N ! ! DO <u>NOT</u> MIX BLEACH WITH CLEANSERS OR OTHER CHEMICALS AS POISONOUS GASES CAN BE CREATED.

Tincture of Iodine
(from medicine chest or first aid kits)

Tincture of Iodine 22 percent	Drops ' be added per gallon	
	Clean water	Cloudy water
	20	40

Let stand for 30 minutes, after which time water is safe to use.

Please repeat every minutes.

Public Health Director

Utilities

Repairs and cleanup go much more quickly when your home's utilities are in working order. But you need to take certain precautions.

Natural Gas

When returning to your home, check immediately for leaking gas pipes. Do this by smell only. If you must have light, use battery-powered flashlights or lanterns. *DO NOT turn lights on or off and DO NOT use candles, oil organ lanterns or torches. If* gas lines are broken, an explosion could occur.

If you smell gas or suspect a leak, turn off the main gas valve at the meter, open all windows and leave the house. Notify the gas company or the police or fire department. Do not re-enter the house until you are told it is safe to do so.

The U.S. Consumer Product Safety Commission recommends that all gas control valves on furnaces, water heaters and other gas appliances be replaced if they have been under water. Silt and corrosion from flood water can damage internal components of control valves and prevent proper operation. Gas can leak and result in an explosion or fire.

Fuel Oil or Propane

Fuel oil or propane tanks may have floated during a flood and connecting pipes may be broken. (Even underground tanks can float.) Turn off the fuel valve at the tank and check for leaky pipes. If you find a leak or are not sure the system is safe, call a professional.

Electric in

If floodwater has entered your home, the electrical system *will* need to be thoroughly checked and repaired. Ideally, this work should be done by an electrician. If this is not possible, follow these guidelines for restoring electrical service after a flood. Remember, when working around electricity, it is important to wear rubber gloves and rubber-soled boots. Rubber is an insulator and will help protect you from shocks. *(CAUTION:* Consult your utility company before using power generators. Be aware that it is against the law and a violation of electrical codes to connect generators to your home's electrical circuits without approved, automatic interrupt devices. If a generator is on-line when electrical service is restored, it can be a major fire hazard. In addition, improperly connecting a generator to your home's electrical circuits may endanger line workers helping to restore power.)

Turn Power Off'

*Disconnect the main electrical switch and any other switches controlling electricity in outbuildings. If the main switch is in the basement, be sure that the area around the switch box is dry before working on the electrical system.
*Remove all fuses or put circuit breakers in "off" position.
*Disconnect all plug-in equipment and appliances and turn off the switch

at each piece of permanently connected equipment. Unscrew all light bulbs.

Clean and Dry the System- If electrical outlets and switches are wet, they should be dried before service is restored. The U.S. Consumer Product Safety Commission recommends that electric circuit breakers, ground fault circuit interrupters and fuses that have been under water be replaced to avoid explosions and fires.

*Remove switch covers, outlets and other electrical connections.
*Pull receptacles, switches and wires about 2 inches out from the boxes, but *DO NOT disconnect the wiring.*
*After removing mud and dirt with clean water, allow connections and wiring to dry completely. This could take days.
*Use extreme caution in cleaning mud and dirt from the main power box. Your home's main power line enters here, so this can be an extremely hazardous part of the system to work on. It is best to assume the power line is hot even if a test light shows that power is off. *NEVER hose out a hot switchbox.* Wear rubber gloves and rubber-soled shoes and be sure to not touch anything wet or stand in water while working on the box. In an emergency, the electrical meter can be pulled from its base to disconnect the power. Notify the electric company that you broke the seal.

Check System for Shorts

*While standing on a dry board or ladder and wearing rubber gloves and rubber-soled shoes, check the main switch box to be sure all fuses are removed.
*Close the main switch and look for sparks or smoking wires, both of which indicate shorted switch connections. If you see such shorts, carefully try to correct the problem. A new switch may be needed.
*If the switch is in working order, open the switch and insert a fuse in one branch circuit.
*Close the switch to check for shorts in that branch circuit.
*If the fuse does not blow immediately, wait at least 15 minutes to check for slower electrical leaks. Carefully inspect all parts of the branch circuit you are checking; smoking wires or sparks indicate a problem. If there are any signs of smoking or heating, if the fuse blows or circuit breaker trips, remove all fuses and open the main switch. You may need to do additional cleaning or drying, or you may need to replace circuit parts.
*Repeat the above steps for each of the other circuits, *one at a time.*
*If, after checking all the circuits, they appear to be in good condition. Once again remove all fuses and open the main switch. Replace wires for electrical receptacles, switches and light outlets in junction boxes. Replace covers. Then check each branch circuit again, *one at a time,* by replacing one fuse at a time and closing the main switch.
*If everything is okay, close the main switch.
*For 24 hours, be careful when using receptacles and switches. There may be slow leaks that could cause shocks. *DO NOT plug in electrical appliances that have been flooded until then have been reconditioned.*

If some circuits are faulty use only the undamaged circuits. Do not overload undamaged circuits with too many lights or appliances until normal capacity is restored. Some newer homes may have a ground fault interruption system with the circuit breaker. This *will* probably need to be replaced.

Outdoors, exercise extreme caution if you find yourself around power lines. *Do Not touch downed power lines,* particularly those in water, or objects that are in contact with downed power lines.

The following tips for dealing with the interior of a home and its contents after a flood have been derived from recommendations by the Federal Emergency Management Agency and the American Red Cross.

Lower the Humidity

Everything will dry more quickly and clean more easily if you can reduce the humidity in the house. There are many ways to lower the humidity and stop the rot and mildew, but you will have to delay using some of the methods if you have no electricity. Be patient - drying your house could take several weeks. Until your house is reasonably dry, damage caused by mildew and decay will continue. The musty odor will stay forever if the house is not dried out well.

**Open up the house.* If the humidity outside is lower than it is indoors, and if the weather permits, open all the doors and windows to exchange the moist indoor air for drier outdoor air. If the sun is out, it should be drier outside. If you have a thermometer with a humidity gauge, you can monitor the indoor and outdoor humidity. On the other hand, when temperatures drop at night, an open house is warmer and will draw moisture indoors. At night and at other times when the humidity is higher outdoors, close up the house.

**Open closet and cabinet doors.* Remove drawers to let air circulate. Drawers may stick because of swelling. Do not try to force them. Help them dry by opening up the cabinet so air can get into it. You will probably be able to remove the drawers as the cabinet dries out.

**Use fans.* Fans help move the air and dry out your home. Do not use central air conditioning or the furnace blower if the ducts were under water. They will blow out dirty air that might contain contaminants from sediment left in the ductwork. Clean or hose out the ducts first.

**Run dehumidifiers.* Dehumidifiers and window air conditioners will reduce the moisture, especially in closed-up areas.

**Use desiccants.* Desiccants (materials that absorb moisture) are very useful in drying closets or other closed areas where air cannot move through. Desiccants like the following are usually available at hardware, grocery or drug stores: chemical dehumidifier packs used for drying boats and damp closets; cat litter made of clay; and calcium chloride pellets (these are the pellets that melt ice in the winter). Put them in a pillowcase, nylon stocking or other porous bag and hang above a bucket to catch dripping water. Close off the area being dried. *BE CAREFUL.* Calcium chloride

can burn your skin. It also makes the air salty so do not use near computers or other delicate equipment. *Call a contractor.* There are contractors who specialize in drying out flooded buildings. They have large fans and dehumidifiers that can dry out a house in a few days. Look in the yellow pages under "Fire and Water Damage Restoration" or "Dehumidifying." Be careful with contractors who inflate prices after a disaster and with out-of-town contractors who request payment in advance.

Sort Contents and Discard Debris

You have three types of contents. They should go to three different places: items you want to save, items to be thrown out and garbage.

**Things you want to save* should be moved to a safe, dry place, such as the second story of the house or outside. The longer they sit in water, the more damaged they will become. Do not leave wood furniture in the sun because it will warp as it dries. To save an area rug, lay a sheet or some other material on top of it before you roll it up so the colors will not bleed. Clean it promptly.

**Things you do not want to save* should be put outside to dry until your insurance adjuster comes to confirm your losses. Take pictures or videotapes and list each item for the record. If you are not sure whether to throw something out, decide whether it is worth salvaging.

**Garbage (i.e.,* food and anything else that could spoil or go bad) should be disposed of immediately. Do not let garbage build up. Garbage piles will cause yet another health hazard by attracting animals and insects. If your insurance adjuster has not come, tell your agent or adjuster that you need to get rid of potential health hazards. That person will tell you how to make sure that your losses are covered. Then throw the stuff out, preferably in sealed plastic garbage bags.

How Floodwaters Affect Your Home

Once contents and debris have been cleared, the next step is to get the water out of the ceilings and walls. How you drain and dry your ceilings and walls depends on how they are constructed.

**Wallboard.* Most ceilings and walls are covered with wallboard, especially in newer homes. Wallboard acts like a sponge, drawing water up above the flood level. It becomes very fragile if it stays wet for long and will fall apart when bumped. When the wallboard finally dries, there will still be mud and contaminants dried inside. Since wallboard that has been soaked by floodwater can be a permanent health hazard, you should discard it.

**Plaster.* Plaster will survive a flood better than wallboard. You should not need to replace it, but it will take a very long time to dry. Sometimes the plaster will separate from its wood laths as it dries. Then the wall will have to be removed and replaced.

**Insulation.* There are three main types of insulation, and each reacts differently to floodwaters. Styrofoam" survives best; it may only need to be hosed off. Fiberglass batts should be thrown out if they are muddy.

If soaked by clean rainwater, remove them so the rest of the wall can dry. They can be put back in the wall, but it will take a very long time for them to dry. Cellulose (loose or blown-in treated paper) insulation holds water for a long time. It can also lose its antifungal and fire retardant abilities and, therefore, should be replaced. *Wood.* If it is allowed to dry naturally, wood will usually regain its original shape. Different layers of laminated wood, such as plywood, may dry at different rates, and that may cause the layers to separate.

Some contaminants will stay in the wood after it dries, but not as much as stays in flooded wallboard. Wood studs and sills will be covered by new wallboard and painted, so they are well removed from human contact. Therefore, wet wood studs and sills do not need to be replaced if they are allowed to dry properly.

Drain the Ceilings and Walls

Ceilings. Check for sagging ceilings. Wet plaster or wallboard is very heavy and dangerous if it falls. Drain ceilings carefully. Attach a nail or other pointed object to the end of a long stick (e.g., hammer a finishing nail into the end of a broomstick). Stand away from, not under, the sag (a doorway is safest). Poke a hole in the ceiling at the edge of the sag so any trapped water can begin to drain. Do not get close to lights and other electrical fixtures with the stick. Do not start at the center of the sag or the ceiling may collapse suddenly. After the water drains, poke another hole, lower down the sag. Keep poking holes as you move to the lowest point.

If the floodwaters went above your ceiling, you should replace it if it is made of wallboard. A plaster ceiling will dry eventually, but if it has too many cracks or sags, you will have to tear it down and replace it. Remove any wet insulation in the ceiling to allow the joists to dry.

**Walls.* Remove water trapped within your walls. To check for water, take off the baseboard. Stick an awl or knife into the wall about 2 inches above the floor (just above the 2" x 4" wood sill plate). If water drips out, cut or drill a hole large enough to allow water to drain freely. Use a hand or cordless drill or saw to avoid shock and avoid drilling in areas that may contain wiring. If you are going to replace the wallboard anyway, you do not have to be neat: Use a hammer to knock out a hole. If your walls are plaster, a knife will not penetrate them. Drill a hole above the sill plate to drain the water. Do not use a hammer or chisel on plaster because the plaster could shatter.

In a newer home, you may have metal sill plates. A metal sill acts as a gutter at the bottom of the wall cavity. Drill a hole at floor level to drain the water, using a hand or cordless drill.

Repeat the process to drain all the wall cavities. Depending on the spacing between studs in your walls, make a hole every 16 inches or every 24 inches. Watch out for wiring, which is usually at the same height as your electrical outlets. If there is wet insulation, you will have to remove the wallboard in order to take out the insulation.

Dry the Ceilings and Walls

Flood-soaked wallboard should be removed and thrown away. Plaster and paneling can often be saved, but you still need to get air circulating in the wall cavities to dry the studs and sills. Different approaches are used for different materials.

**Wallboard.* If dirty floodwaters soaked the wallboard at least 4 feet above the floor, take down all the wallboard and replace it. If the water was less than 4 feet deep, remove the lower 4 feet of wallboard. You can fill the gap with new 4' x 8' wallboard sheets installed sideways.

If you have Styrofoam" insulation- or no insulation - and the wallboard was soaked with clean rainwater, you can dry the walls without removing the wallboard by using the technique explained below for plaster walls. But you will need to remove wet insulation if it is not Styrofoam

**Plaster walls.* If the plaster or wallboard is clean and in good shape, you can drill or cut ventilating holes in each wall cavity. Place holes low enough so they will be covered by the baseboard after the wall dries out. Open up the walls on both sides of interior walls. For exterior walls, drill or cut holes only on the inside of the house. However, if there is wet insulation, you will have to remove the plaster or wallboard in order to take out all the insulation.

**Concrete block.* The cavities in a concrete block wall will drain on their own. The water will not damage the concrete like it will wood or wallboard.

**Wall covering.* Vinyl wall covering seals the wall and keeps it from drying out. Wallpaper paste will promote the growth of mold and mildew. For these reasons, you should remove and discard all wall covering that got wet. (If vinyl wall covering is loose on the bottom, you may be able to save it by pulling it off the wall up to the flood level. Clean and reapply it after everything dries.)

**Paneling.* Carefully pry the bottom of each panel away from the wall. Use something to hold the bottom away from the sill so the cavities can drain and dry out. You can nail them back into shape after they and the studs dry out. However, if there is wet insulation, you will have to remove the paneling in order to take out all the insulation.

Dry the Floor

Air needs to move around flooded floors so they can dry out. This usually means, that you must remove the floor covering. Because floodwaters contain mud and dirt, most soaked floor coverings should be thrown away. Keep a piece of all discarded floor covering so the adjuster can tell its value.

Air needs to circulate below the floor to dry it out. If the crawl space of your house is flooded, pump it out. Remove any plastic sheets, vapor barriers or insulation from beneath the floor. (Be sure to replace them when the floor and foundation are completely dry.)

If a house with a basement was flooded over the first floor, remove finished basement ceilings or cut or drill holes between all joists to allow air circulation. Do not cut or drill near electric lines or pipes.

Cleanup
The walls, floors, closets, shelves, contents - every flooded part of your house - should be completely washed and disinfected. Some projects, such as washing clothes, may have to wait until all the utilities are restored. Others may be best done by professionals.

Cleanup Supplies- The American Red Cross and other organizations often distribute cleanup kits after a disaster. These contain many useful items such as a broom, mop, bucket and other cleaning supplies.

In most cases, household cleaning products will do the job if you use them correctly. Check the label on the products to see how much to use. Some products should not be used on certain materials; the label will tell you that. Apply the cleaner and give it time to work before you mop or sponge it up. Follow directions and all safety precautions on the container. Be careful not to mix chlorine disinfectants and cleaning compounds containing ammonia - the combination can cause dangerous chlorine gas to be produced.

After cleaning a room or item, go over it again with a disinfectant to kill the germs and smell left by the floodwaters. You also may need to get rid of mildew, an unwelcome companion to moisture that shows as fuzzy splotches.

Cleaning Tips - Tackle one room at a time. A two-bucket approach is most efficient: Use one bucket for the cleaning solution and the other for the rinse water. Rinse out your sponge, mop or cleaning cloth in the rinse bucket. Wring it as dry as possible and keep it rolled up tight as you put it in the other bucket. Let it unroll to absorb the cleaning solution. Using two buckets keeps most of the dirty rinse water out of your cleaning solution. Replace the rinse water frequently.

Walls. Start cleaning a wall right above the floodwater level. If you did not have to remove the wallboard or plaster, you may find the wallboard or plaster will not come clean and you will want to replace it rather than clean it. If you have removed the wallboard or plaster, wash the studs and sills and disinfect them.

Windows. If you taped your windows before the storm, clean the tape off as soon as possible. The sun will bake the adhesive into the glass. If glass cleaners do not remove the adhesive, try tar remover, acetone, nail polish remover, or a razor blade. And next time, do not bother taping the windows. You do not get much protection for all that effort.

Furniture. Do not try to force open swollen wooden doors and drawers. Take off the back of the piece of furniture to let the air circulate. You will probably be able to open the drawers after they dry.

Solid wood furniture can usually be repaired and cleaned, but wood veneer often separates and warps. Wood alcohol or turpentine applied with a cotton ball may remove white mildew spots on wood. Cream wood restorers with lanolin will help restore good wooden furniture parts.

Upholstered furniture soaks up contaminants from floodwaters and should be cleaned only by a professional. This is also true of carpets and bedding. Unless the piece is an antique or very valuable, upholstered furniture soaked by floodwaters should probably be discarded. Get a cost estimate from a professional to see if furniture is worth saving.

Appliances. There is an unexpected danger of shock with some electrical appliances such as T V sets and radios. Certain internal parts store electricity even when the appliance is unplugged. Check the back for a warning label. Appliances with such labels will need professional cleaning. Be sure to get a cost estimate to see if they are worth saving.

You will need appliances such as the washing machine, dryer, dishwasher and vacuum cleaner to help clean your house and its contents. The motors or heating elements can usually be cleaned. If you cannot wait for a professional cleaning job, unplug, disassemble and hose off the appliances thoroughly (with hot water, if possible). Then clean and disinfect them, but do not use detergents.

Clean and disinfect dishwashers, washing machines and dryers only with water that has been declared safe for drinking. Make sure the sewer line is working before you start a dishwasher or washing machine. You can speed up the drying process for motors and parts by using a blow dryer or a moisture displacement spray. Moisture displacement sprays, such as electronics parts cleaners or WD-40" lubricating and penetrating oil, are available at hardware or automotive parts stores. The sprays can also stop rust and corrosion until the appliance can be disassembled and cleaned. One word of caution: The spray is flammable. Read and follow label instructions and precautions.

Moving parts such as motors and pulleys will need oil or grease. Contacts and electrical switches can be cleaned with a moisture displacement spray or an aerosol contact cleaner available at electronics or auto parts stores. Allow a motor to run for 30 minutes with no load before you use it. For example, run the vacuum cleaner without connecting the belt.

Watch for stripped or damaged insulation around wires. Be sure all appliances are properly grounded. Appliances that must be grounded have a round third prong or a grounding wire on their plugs.

Refrigerators, freezers and ovens are more complicated. They may have foam insulation and sealed components that suffered little water damage. But these appliances hold food, so they should be cleaned, disinfected and checked by a professional or replaced. Check the insulation; if it is wet, the appliance will probably have to be discarded. If the insulation is not wet and the motor and freezing unit are in safe working order, clean and sanitize your refrigerator or freezer by following these steps:

Dispose of any spoiled or questionable food.

Remove shelves, crisper drawers and ice trays and wash with hot water and detergent. Follow with a disinfectant rinse (2 ounces of bleach per gallon of water).

Wash the interior of the refrigerator or freezer, including the door and the gasket, with warm water and baking soda (1 teaspoon baking soda per quart of water) or vinegar or ammonia (1 cup of either per gallon of water). Rinse with disinfectant solution. Leave the door open and allow fresh air to circulate for about 15 minutes.

If odors remain, use a commercial refrigerator deodorizer or activated charcoal. If using activated charcoal (which is available at drugstores), spread about 3 ounces on a sheet of aluminum foil or in a shallow pan and place on refrigerator or freezer shelf. Foods can remain in the refrigerator with the charcoal. After six to eight hours, reactivate the charcoal by placing it in a moderate oven (350`F) for several minutes. Put the charcoal back in the refrigerator or freezer; repeat this process until the odors disappear.

If you have doubts about whether your appliances should be replaced, have them checked by a repair person. If the repair person advises you to replace an expensive appliance, get the opinion in writing and discuss it with your insurance adjuster before you spend money for another one.

Clothing and linens. Even if your washing machine did not get yet, do not use it until you know that the water is safe enough to drink and that your sewer line works. (Perhaps a friend or relative has a washing machine you can use until yours is clean and working.)

Before you wash clothes in the washing machine, run the machine through one full cycle. Be sure to use hot water and a disinfectant or sanitizer.

Take clothes and linens outdoors and shake out dried mud or dirt before you wash them. Hose off muddy items to remove all dirt before you put them in the washer. That way your drain will not clog.

Check the labels on clothes and linens and wash them in detergent and warm water if possible. Adding chlorine bleach to the wash cycle will remove most mildew and will sanitize the clothing, but bleach fades some fabrics and damages other fabrics. You can buy other sanitizers, such as pine oil cleaners, at the grocery store to sanitize fabrics that cannot be bleached.

If the label says "Dry Clean Only," shake out loose dirt and take the item to a professional cleaner. Furs and leather items are usually worth the cost of professional cleaning. If you want to clean leather yourself, wash the mud off and dry the leather slowly away from heat or sunlight.

Kitchen items. Throw out soft plastic and porous items that probably absorbed whatever the floodwaters carried. Floodwaters are contaminated, so you may want to wash dishes by hand in a disinfectant. Air dry the disinfected dishes; do not use a dish towel.

Like the washing machine, the dishwasher should be used only after you know your water is safe to drink and your sewer line works. Clean and

disinfect it first. Then use a hot water setting to wash your pots, pans, dishes and utensils. (If you have an energy saving setting, do not use it.)

Paper and books. Valuable papers such as books, photographs and stamp collections can be restored with a great deal of effort. They can be rinsed and frozen (in a frost-free freezer or commercial meat locker) until you have time to work on them. A slightly less effective alternative to freezing is to place paper in a sealed container, such as a plastic bag, with moth crystals.

Dry papers quickly when you thaw or unseal them. (A blow dryer will do.) Do not try to force paper products apart - just keep drying them. Photocopy valuable papers and records soon because substances in the floodwater may make them deteriorate.

If a computer disk or tape has valuable information, rinse it in clear water and put it in a plastic bag in the refrigerator. Later, you can take it to a professional drying center and have the data transferred to a good disk or tape. Many companies that specialize in restoring computers and computer records after a disaster are members of the Disaster Recovery Institute. To find a member company near you, call 314-846-2007.

The yard. As you get rid of things from your house, do not turn your yard into a dump. Health hazards such as food and garbage must be hauled away as soon as your insurance agent or adjuster has told you how to make sure their loss is covered. Other things you throw away should be removed as soon as your insurance adjuster says it is okay. Lawns usually survive being under water for up to four days. Mud can be hosed off shrubs. You may have to replace the lawn if there was mud much thicker than an inch deep or if erosion has occurred. Check with your local nursery, garden store, or Cooperative Extension Service.

What to Use	1st Choice	2nd Choice	3rd Choice
Cleaning	nonsudsing household cleaners	laundry soap or detergent	
Disinfecting	1/4-cup (2 ounces) of liquid chlorine bleach mixed in 1 gallon of water	household disinfectants or sanitizers, such as the quaternary; phenolic or pine-oil disinfectants (check labels for contents)	
Removing mildew	household mildew removers or mildewcides	washing soda or trisodium phosphate (available at grocery or paint stores); use 5 tablespoons for each gallon of water	1/4-cup (2 ounces_ of laundry bleach mixed in 1 gallon of water

Bleach - Liquid chlorine bleach, such as Clorox" or Purex'", can do a variety of flood cleanup jobs. Make sure that 5.25 percent sodium hypochlorite is the only active ingredient. Bleach that has a scent added to improve its smell is available. Scented bleach is fine for cleanup jobs, but do not use it to purify drinking water. Do not use dry bleach or any bleach that does not contain chlorine.

Be careful of fumes and wear rubber gloves. Read the safety instructions on the label. Do not mix bleach with other household chemical products, especially ammonia or toilet bowl cleaner; the chemical reaction can create a poisonous gas. Do not use bleach on aluminum or linoleum.

Carbon Monoxide Poisoning

Portable generators and other gasoline-powered equipment should be used only in well-ventilated spaces. Ideally, they should only be used outdoors. The same is true for camp stoves and charcoal grills; fumes from charcoal are especially dangerous.

All combustion engines - even small ones - produce carbon monoxide, which is odorless and colorless. Carbon monoxide can rapidly build up in an indoor area before individuals are aware they are being exposed. Most deaths from CO poisoning occur at night while the victims are sleeping. Even if awake, confusion, headaches, dizziness, fatigue and weakness may set in too quickly, for victims to save themselves.

Once inhaled, carbon monoxide decreases the blood's ability to carry oxygen to the brain and other vital organs. Carbon monoxide poisoning can cause permanent brain damage, including changes in personality and memory. As CO levels in the blood increase, chest pains and heart attacks can occur in people with pre-existing coronary artery disease.

If you suspect carbon monoxide exposure or poisoning, leave the area immediately and call emergency personnel. Be sure the gas company or the local health department is notified. Affected individuals should be led to fresh air and provided with oxygen, if necessary. Follow standard first-aid practices: Keep victims warm and quiet until help arrives.

Debris Removal

Receding floodwaters leave tons of debris behind. Furniture, appliances, animal carcasses, clothing, building materials, vehicles, and chemical and other containers are just some of the items that litter the landscape. Getting rid of these materials requires time, patience and caution.

Burning

During flood emergency situations, it may be permissible to burn debris and other waste caused by the flood. Check with local officials to see if there are any restrictions.

If you do burn debris, use common sense. Burn in a centralized location that is away from residential areas. Be sure that the fire is continuously monitored.

There are some materials that should not be burned, including chemicals, batteries, painted or treated wood, plastics, tires, asphalt and asbestos. All chemicals should be handled and disposed of according to requirements established by the U.S. and Kentucky Environmental Protection agencies. Tires should be reused or recycled; if disposed of in a landfill, tires must be shredded. Asbestos can be landfilled.

Farm Debris

In the aftermath of a flood, there will be much debris and waste on farms. Much of this can be disposed of on the farm. Building materials, trees, brush, ashes and carcasses may be buried or burned on the farm.

Silage or stored grain that has become wet can present dangers due to the generation of fermentation gases, molds, bacteria, organic dusts, or spontaneous combustion. It is important to monitor storage areas for heat (indicating fermentation or potential combustion), ventilate them well, wear appropriate protective gear (including respirators) and never work alone. If unsalvageable, wet grain or silage should be removed and landfilled or burned.

Grain that has become wet may also become contaminated with aflatoxin from the molds growing on it. Immersed grain, if salvageable at all, can only be used for industrial purposes. It must not be used for animal or human food. Stored grain that escaped immersion should still be tested for the presence of aflatoxin before it is sold or used, since high humidity may affect the growth of aflatoxin-producing molds.

Animal Carcasses

Prompt and sanitary disposal of animal carcasses is necessary to protect living animals in the area from disease. Search all pastures for dead animals as soon as possible. Carcasses may have some commercial value, so check with a rendering plant and see if it can quickly pick up dead animals. If not, bury the carcasses at least 3 to 4 feet deep (This will keep predatory animals from digging them up). Choose a site where subsurface drainage will not reach water supplies. If possible, cover carcasses with quicklime before back filling to hasten decomposition.

Lead and Asbestos Exposure

The extensive renovation that occurs following a flood can expose the homeowner to dangerous levels of asbestos and lead from lead-based paints. One way to avoid this kind of hazardous exposure is to contact qualified contractors to remove the asbestos and lead from the home. If homeowners plan to clean up their residences themselves, they should follow certain safety guidelines.

Protect all foods, appliances, personal items, cooking utensils and clothing from dust. Remove them from the work area or place them securely in plastic bags. If possible, remove and replace lead-painted trim. If this is not possible, use non-flammable chemical paint stripper (make sure it does not contain methylene chloride) to remove the paint. Follow product instructions.

DISEASE/INJURY

Floodwater may contain fecal material from overflowing sewage systems, and agricultural and industrial byproducts. While skin contact with floodwater does not, by itself, pose a serious health risk, ingesting anything contaminated with floodwater can cause disease.

Although disease outbreaks are rare after flooding, floodwater can contain various bacteria, viruses and other infectious organisms that may cause disease. If you are in a flood area and become ill, report your condition to your physician or local health department. The symptoms of most waterborne illnesses are similar - nausea, vomiting, diarrhea, abdominal cramps, muscle aches and fevers. Individuals may need to seek medical attention if these symptoms are severe or persist.

Wound Management

If you have any kind of cut, burn or infection on your hands, be sure to use plastic or rubber gloves if you must be in contact with floodwater. If open sores become exposed to contaminated water, disinfect the area(s) with soap and clean water to control infection. If a wound develops redness, swelling or drainage, immediately seek medical attention. Serious injuries, such as deep lacerations, uncontrolled bleeding, broken bones, etc., require immediate medical attention.

Tetanus

The tetanus bacteria typically enters the body through places where the skin is broken, so it is very important to protect these areas. Administration of antibiotics against tetanus is neither practical nor useful in managing wounds. Wound cleaning, debridement (surgical removal of contaminated or lacerated tissue) when necessary, and proper immunization are important. Anyone sustaining a puncture wound or who has a wound that becomes contaminated with feces, soil or saliva should have a doctor determine whether a tetanus booster is necessary. Specific recommendations for vaccinations should be made on a case-by-case basis.

Gastrointestinal Illness

Floodwaters may carry a number of infectious organisms that can threaten the public's health. Generally, these organisms live in the intestines of animals and sometimes humans. The diseases transmitted by water generally produce diarrhea, with or without nausea and vomiting. Under certain circumstances, hepatitis A virus also can be transmitted by ingesting sewage-contaminated water.

While there are no immunizations against these diseases, good personal hygiene and avoiding contaminated foods and beverages are critical preventive measures. Individuals also should avoid swimming, body surfing, scuba diving, wading or playing in floodwaters.